

Amendment and Response

Applicant: Daniel Lyle Callahan et al.

Serial No.: 10/615,011

Filed: July 8, 2003

Docket No.: 200308561-1/H300.210.101

Title: FORCE DISTRIBUTING SPRING ELEMENT

REMARKS

The following remarks are made in response to the Office Action mailed July 25, 2005. Claims 1 and 2 have been withdrawn from consideration, and have been cancelled without prejudice. Claims 3-19 were rejected. With this Response, claims 8-9, 11, and 16 have been amended. Claims 3-19 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 103

In the Office Action, claims 3-7 and 10-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Sinha et al. U.S. Patent No. 6,475,011 in view of the Haselby et al. U.S. Patent No. 6,299,460.

Applicant's independent claim 3 claims an electronic component system. As admitted in the Office Action, the Sinha Patent fails to disclose a second portion of a curved spring member in unsecured, pressing contact against the second side of the printed circuit board as recited in independent claim 3. In one example, as shown in Figures 2A-2B of the Sinha Patent, a stiffener 230 and compression screw 242 are positioned between the printed circuit board and the spring 272.

The Haselby Patent fails to cure the deficiencies of the Sinha Patent. In particular, the Haselby Patent also fails to disclose a second portion of a curved spring member in unsecured, pressing contact against the second side of the printed circuit board, as recited in independent claim 3. In the Haselby Patent, as shown in Figures 2-5, a backing plate 102 is positioned between the printed circuit board and the springs 102-108. Moreover, the Haselby Patent fails to disclose a backing plate spaced from a second side of the printed circuit board as recited in independent claim 3, because the backing plate 102 is in contact with the second side of its printed circuit board 52.

Accordingly, both the Sinha Patent and the Haselby Patent disclose a screw or a plate, respectively, that contacts a back side of the printed circuit board instead of a second portion of a spring member contacting against a second side of the printed circuit board, as recited in independent claim 3. Accordingly, because the Sinha Patent fails to disclose this feature of Applicant's independent claim 3, and the Haselby Patent fails to cure this deficiency, one

Amendment and Response

Applicant: Daniel Lyle Callahan et al.

Serial No.: 10/615,011

Filed: July 8, 2003

Docket No.: 200308561-1/H300.210.101

Title: FORCE DISTRIBUTING SPRING ELEMENT

cannot combine the Sinha Patent and the Haselby Patent and arrive at Applicant's independent claim 3.

For these reasons, the Sinha Patent and the Haselby Patent fail to teach or suggest independent claim 3, and therefore Applicant's independent claim 3 is patentable and allowable over the Sinha Patent and the Haselby Patent. Dependent claims 4-10 are also believed to be allowable as they further define patentably distinct independent claim 3.

Applicant's note that dependent claims 8-9 were rejected under a separate rejection.

Applicant's amended independent claim 11 claims a force distributing mechanism, which is not disclosed by the Sinha Patent and/or the Haselby Patent. Applicant's claim 11 includes the limitation that the means for maintaining and distributing the contact force (substantially uniformly across the contact array the land grid array module and the contact array of the printed circuit board) is in direct contact with the printed circuit board. This limitation of Applicant's independent claim 11 highlights the lack of other intervening structures between the means for maintaining and distributing the contact force and the printed circuit board. As previously presented regarding Applicant's independent claim 3, both the Sinha Patent and the Haselby Patent disclose such other intervening structures (e.g., screw or plate) as confirmed by the Examiner admitting that the Sinha Patent failed to disclose pressing contact [of such means] against the printed circuit board.

Accordingly, because the Sinha Patent fails to disclose this feature of "direct contact" in Applicant's independent claim 11, and because the Haselby Patent fails to cure this deficiency, one cannot combine the Sinha Patent and the Haselby Patent and arrive at Applicant's independent claim 11.

For these reasons, the Sinha Patent and the Haselby Patent fail to teach or suggest independent claim 11, and therefore Applicant's independent claim 11 is patentable and allowable over the Sinha Patent and the Haselby Patent. Dependent claims 12-15 are also believed to be allowable as they further define patentably distinct independent claim 11.

For substantially the same reasons as previously presented for the patentability of independent claims 3 and 11, the Sinha Patent and the Haselby Patent also fail to disclose Applicant's amended independent claim 16. In particular, both the Sinha Patent (as admitted

Amendment and Response

Applicant: Daniel Lyle Callahan et al.

Serial No.: 10/615,011

Filed: July 8, 2003

Docket No.: 200308561-1/H300.210.101

Title: FORCE DISTRIBUTING SPRING ELEMENT

in the Office Action) and the Haselby Patent fail to disclose a second portion of a curved spring member in unsecured, pressing contact against the second side of the printed circuit board, as recited in independent claim 16. In addition, Applicant's independent claim 16 includes the limitation that the unsecured pressing contact is in direct contact against the second side of the printed circuit board, which further highlights the lack of other intervening structures between the curved spring member and the second side of the printed circuit board. As previously presented regarding Applicant's independent claim 3, both the Sinha Patent and the Haselby Patent disclose such intervening structures. Accordingly, because the Sinha Patent fails to disclose this feature of Applicant's independent claim 16, and the Haselby Patent fails to cure this deficiency, one cannot combine the Sinha Patent and the Haselby Patent and arrive at Applicant's independent claim 16.

For these reasons, the Sinha Patent and the Haselby Patent fail to teach or suggest independent claim 16, and therefore Applicant's independent claim 16 is patentable and allowable over the Sinha Patent and the Haselby Patent. Dependent claims 17-19 are also believed to be allowable as they further define patentably distinct independent claim 16.

In the Office Action, claims 8-9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Sinha Patent, as modified by the Haselby et al. Patent, as applied to claims 3 and 11, and further in view of the Urein U.S. Patent No. 6,885,557.

Applicant's amended dependent claim 8 specifies that the second portion of the spring member comprises a curved, central body portion , wherein the backing plate includes a recessed portion defined in a main body of the backing plate that is configured to receive the first portion of the spring member.

For the reasons previously presented regarding the patentability of independent claim 3, from which claim 8 depends, the Sinha Patent as modified by the Haselby et al. Patent fails to disclose Applicant's amended dependent claim 8.

As to the additional features specifically recited in dependent claim 8, the Unrein Patent fails to cure the deficiencies of the Sinha Patent and Haselby et al. Patent combination, because the TIM spring 20 in the Unrein Patent includes blocks 22 for contacting system board 30 instead of a curved central body portion for pressing contact against a second side of a printed circuit board, as claimed by Applicant.

Amendment and Response

Applicant: Daniel Lyle Callahan et al.

Serial No.: 10/615,011

Filed: July 8, 2003

Docket No.: 200308561-1/H300.210.101

Title: FORCE DISTRIBUTING SPRING ELEMENT

Accordingly, because the Sinha Patent and the Haselby et al. Patent combination fails to disclose Applicant's dependent claim 8, and the Unrein Patent fails to cure this deficiency, one cannot combine the Sinha Patent, Haselby et al. Patent, and the Unrein Patent and arrive at Applicant's dependent claim 8.

For these reasons, the Sinha Patent and the Unrein Patent, alone or in combination, fail to teach or suggest dependent claim 8, and therefore Applicant's dependent claim 8 is patentable and allowable over the Sinha Patent and the Unrein Patent. Dependent claim 9 is also believed to be allowable as it further defines patentably distinct dependent claim 8.

In light of the above, Applicants respectfully request withdrawal of the rejection of claims 3-19 based on the Sinha Patent, the Haselby Patent, and/or the Unrein Patent, respectively, under 35 U.S.C. §103.

Amendment and Response

Applicant: Daniel Lyle Callahan et al.

Serial No.: 10/615,011

Filed: July 8, 2003

Docket No.: 200308561-1/H300.210.101

Title: FORCE DISTRIBUTING SPRING ELEMENT

CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 3-19 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 3-19 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(b)(c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Respectfully submitted,

Daniel Lyle Callahan et al.,

By their attorneys,

DICKE, BILLIG & CZAJA, PLLC
Fifth Street Towers, Suite 2250
100 South Fifth Street
Minneapolis, MN 55402
Telephone: (612) 767-2504
Facsimile: (612) 573-2005

Date: October 11, 2005
PSG:bac


Paul S. Grunzweig
Reg. No. 37,143

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 11th day of October, 2005.

By Paul S. Grunzweig
Name: Paul S. Grunzweig